Math 112
ReQuiz 05C06C

2022–04–03 (N)

Your name: _____

Exercise

(4 pt) Consider the function $f : (0, +\infty) \to \mathbf{R}$ given by

$$f(x) = x^2 - \ln(x^2)$$

(a) (2 pt) Compute the linearization of (aka linear approximation to) f at $x = 1$.

(b) (1 pt) Use your linearization from part (a) to approximate the value $f(e)$. Find the error in this approximation. (Where relevant, you may leave computations in terms of e. If preferred, you may use the estimate $e^2 \approx 7.39$.)

(c) (1 pt) Conjecture what will happen to the error if we use your linearization from part (a) to approximate $f(x)$ for larger and larger values of x. Explain.